

Review on the mesenchymal stem cells and their potential application in regenerative medicine

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*Abstract

Stem cells are unspecialized cells that are capable of self-renewal and differentiate into a variety of cell types. Indeed, stem cells are able to differentiate into functional specialized cells e.g. myocardiocyte, neurocyte, osteoblast, adipocyte, chondrocyte, etc. Among stem cells, mesenchymal stem cells (MSCs) have been considered by researchers on account of having differentiation ability into variety of cells with no risk of tumorigenicity and immune system stimulation. The aim of this article is reviewing of stem cell types, their sources, MSCs, their features and characteristics, their potential in regenerative medicine and their clinical application in medicine. Information have been gathered in the present review study in 2017, by referring to the following databases; PubMed, Science Direct, Ovid Databases, Scopus, Wiley and Springer. MSCs have an ability to differentiate into various cells e.g. osteoblast, adipocyte, myocardiocyte, chondrocyte, myoblast, neurocyte, neuroglia cells, myocyte, endothelial cells, isle cells, etc. Also, it seems that MSCs have been preferred in regenerative medicine because of having immunomodulatory properties and ability of secretion of various cytokines and growth factors. Development of human knowledge in the field of producing, proliferation and differentiation of stem cells, bring the hope of using these cells in treatment of neural lesion e.g. spinal cord injury, multiple sclerosis, Alzheimer, parkinsonism, etc.

Keywords: Stem cell, Mesenchymal stem cell, Regenerative medicine

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